

# GoldStar

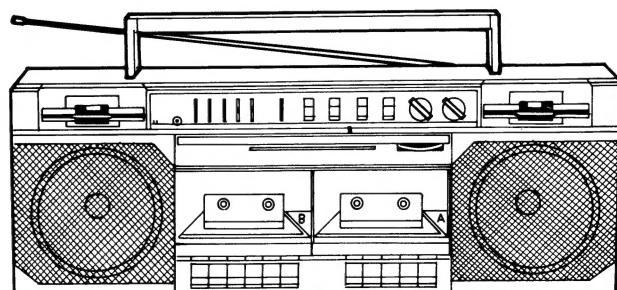
## SERVICE MANUAL

### STEREO DOUBLE CASSETTE RECORDER

#### CAUTION

BEFORE SERVICING THE CHASSIS, READ THE "SAFETY PRECAUTIONS", IN THIS MANUAL

**MODEL: TWC-7083  
(MW/SW/FM)**



**MODEL: TWC-7083**



**GoldStar**

## CONTENTS

SPECIFICATIONS .....	2
DIAL CORD STRINGING .....	3
ADJUSTMENT .....	4
TEST EQUIPMENT CONNECTIONS .....	8
STANDARD MAINTENANCE .....	9
BLOCK DIAGRAM	
• AF PART.....	10
SCHEMATIC DIAGRAM	
• RF PART.....	11
• AUDIO PART .....	12
PCB LAYOUT .....	13
WIRING DIAGRAM .....	14
IC INTERNAL DIAGRAM .....	15
EXPLODED VIEW	
• CABINET .....	16
• DECK MECHANISM .....	17
REPLACEMENT PARTS LIST	
• ELECTRICAL .....	18
• CABINET .....	19
• DECK MECHANISM .....	20

## SAFETY PRECAUTION

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual, electrical components having such features are identified by a  in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire or other hazards.

## SPECIFICATIONS

### ● MW RADIO

Frequency Range .....	.515–1630 KHz
Intermediate Frequency .....	.455 or 465 KHz (OPTION)
Usable Sensitivity .....	.58 dB (400 Hz, 30% Mod)
S/N Ratio .....	.36 dB (74 dB Input)
I.F. Rejection Ratio.....	.30 dB (At 20 dB S/N SENS)
10% T.H.D. Power Output .....	.1.8 W (DC), 1.6 W (AC)
T.H.D. .....	.5% (400 Hz 30% Mod.)
Audio Response (100 Hz – 3 KHz). . . . .	.0 ± 6 dB

### ● FM RADIO

Frequency Range .....	.87.35 – 108.25 MHz
Intermediate Frequency .....	.10.7 ± 0.1 MHz
Usable Sensitivity .....	.20 dB (30 dB S/N)
S/N Ratio .....	.40 dB (60 dB Input)
I.F. Rejection Ratio .....	.60 dB (Maximum Sensitivity)
Automatic Frequency Control .....	.300 ~ 700 KHz (Input 60 dB)
10% T.H.D. Power Output .....	.1.8 W/1.6 W (Input 60 dB, DC/AC)
T.H.D. .....	.3%
Audio Response. (100 Hz ~ 8 KHz) . . . . .	.0 ± 6 dB (100 Hz), 0 ± 7 dB (8 KHz)
Stereo Separation .....	.20 dB (60 dB Input At 1KHz)
Stereo T.H.D. . . . .	.5 % (75 KHz Dev.)

### ● SW RADIO

Frequency Range .....	.5.7 – 18.5 MHz
Intermediate Frequency .....	.455 or 465 KHz (OPTION)
Usable Sensitivity .....	.45 dB (SW Dummy Use)
S/N Ratio .....	.35 dB (60 dB Input)
Image Rejection Ratio .....	.3 dB (At Maximum Sensitivity)

### ● TAPE RECORDER

Tape Speed .....	.± 3 Cm/Sec (MTT-III)
Wow & Flutter .....	.0.35% (JIS-WRMS, MTT-III)
Distortion .....	.5% (PLAY), 10% (REC/PLAY)
Output .....	.1.8W/1.6W (DC/AC)
S/N Ratio .....	.36 dB (PLAY), 25 dB (REC/PLAY)
Erase Ratio .....	.40 dB (CS-26)
5EQ Frequency Response .....	.± 6dB (MTT-256)

● GENERAL

Circuit System .....	.AC Bias/Magnet Erase Upper Heterodyne System 5 Band Graphic Equalizer
Speaker .....	.Woofer: 40 ohm x 2EA (3.5 Inch) Tweeter: 40 ohm x 2EA (Piezo)
Power Source .....	.DC: 9V ("D" Cell x 6) AC: 110/220V, 50/60 Hz (OPTION)
Antenna .....	.FM/SW: Telescopic Rod Antenna MW: Ferrite Bar Antenna

## DIAL CORD STRINGING

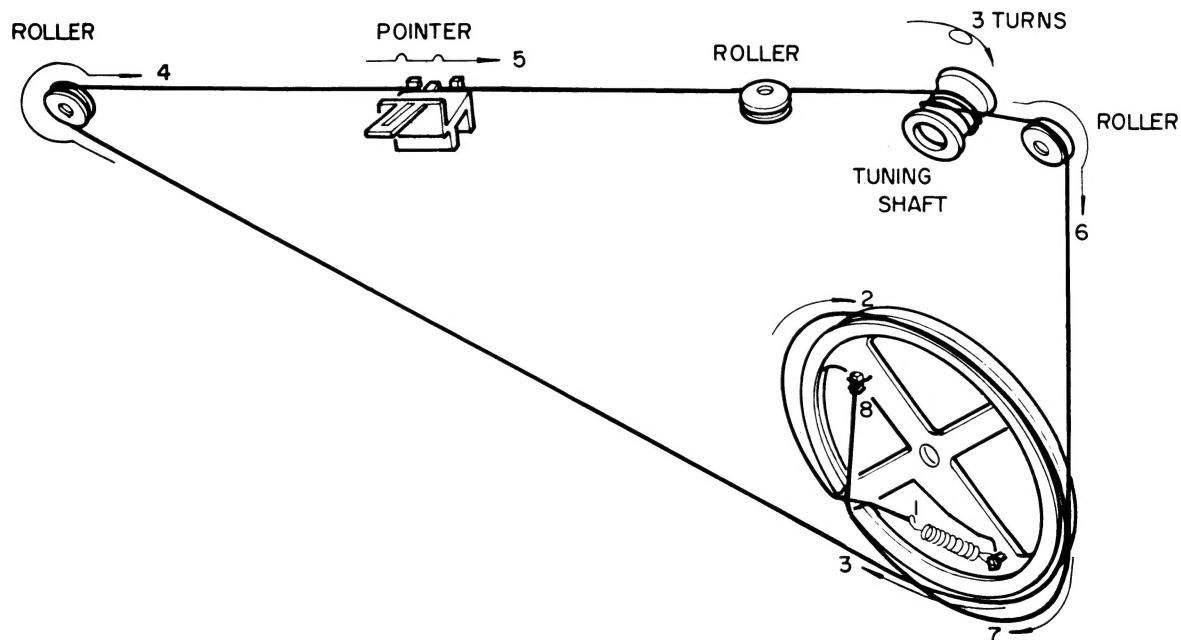


Figure 1.

Set the tuning capacitor to minimum frequency and string the cord following the numbers in figure 1.

## ADJUSTMENT

### • EQUIPMENT NEEDED

1. AM Signal Generator
2. FM Signal Generator
3. AM/FM IF Genescope
4. FM Stereo Signal Generator
5. Oscilloscope
6. Output Meter (VTVM)
7. Frequency Counter
8. Nonmetallic Alignment Tools
9. Test Tape: MTT-141 (8KHz)

### • IMPORTANT

1. Check power-source voltage.
2. Set the function switch to band being aligned.
3. Turn volume control to minimum unless otherwise noted.
4. Connect low side of signal source and output indicator to chassis ground unless otherwise specified.
5. Keep the signal input as low as possible to avoid AGC and AFC action.
6. Standard modulation is 400Hz at 30% for AM. (400Hz at 22.5kHz deviation for FM)

### • TEST AND ADJUSTMENT POINT

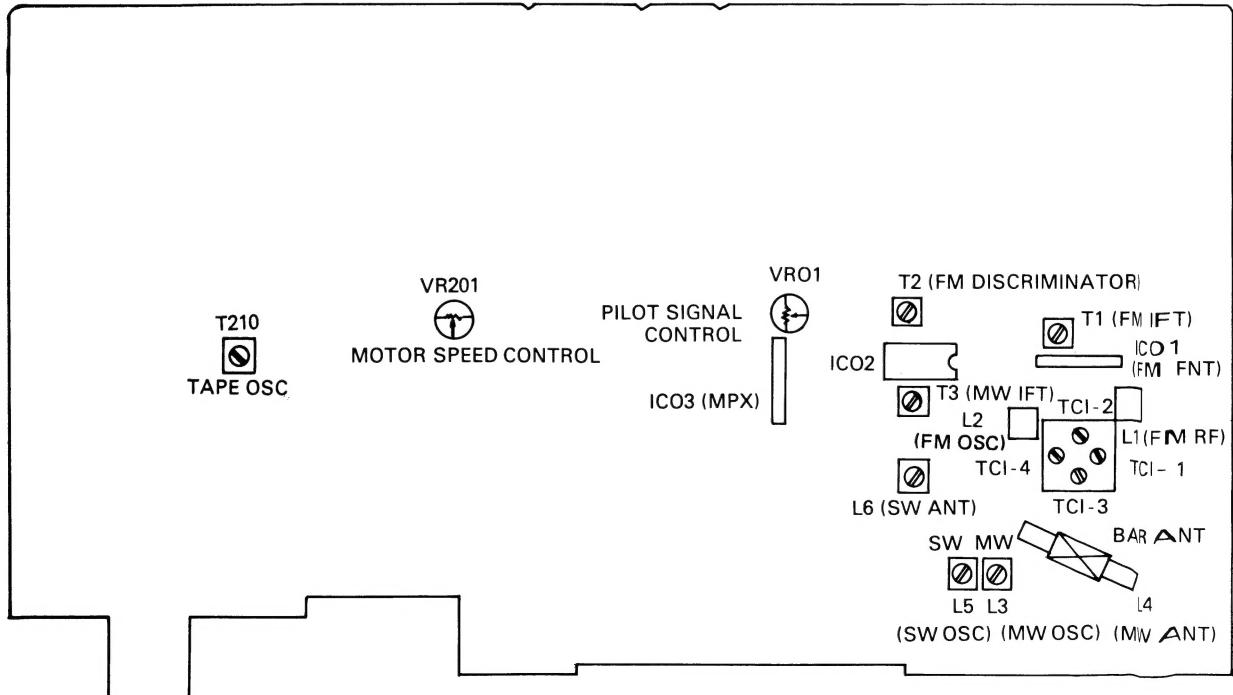


Figure 2. RF P.C. Board

- **MW SECTION**

Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
IF	Connect input of IF Genescope to No. 9 Of ICO2 , output to MW Ant coil (L4) through the dummy. (Figure 3)	1	455 KHz (400 Hz Mod.)	Tuning Gang fully closed	T3 (MW IFT) ) Adjust for maximum output
		2			Repeat until no further improvement can be made.
Band	AM Signal Generator with loop antenna. Output Meter (VTVM) across 4 ohm load. (Figure 4)	3	520 KHz (400Hz Mod.)	Tuning Gang fully closed	L3 (MW OSC. Coil) Adjust for maximum output.
		4	1630 kHz (400 Hz Mod.)	Tuning Gang fully open	TC1-3 (MW OSC, Trimmer). Adjust for maximum output.
		5			Repeat steps 3 & 4
Tracking	AM Signal Generator with loop antenna. Output Meter (VTVM) across 4 ohm load (Figure 4)	6	600 kHz (400 Hz Mod.)	Tune to signal	L4 (MW Ant. Coil). Adjust coil on ferrite core for maximum.
		7	1400 kHz (400 Hz Mod.)	Tune to signal	TC1-4 (MW Ant. Trimmer) Adjust for maximum output.
		8			Repeat steps 6 & 7 several times.

- **SW SECTION**

Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
Band	AM Signal Generator to antenna terminals through SW dummy matching network. Output Meter (VTVM) across 4 ohm load. (Figure 5)	1	5.7 MHz (400 Hz Mod.)	Tuning Gang fully closed	L5 (SW OSC. Coil). Adjust for maximum output.
		2	18.5 MHz (400 Hz Mod.)	Tuning Gang fully open	TC3 (SW OSC, Trimmer) . Adjust for maximum output.
		3			Repeat steps 1 & 2
Tracking	AM Signal Generator to antenna terminals through SW dummy matching network. Output Meter (VTVM) across 4 ohm load. (Figure 5)	4	6.5 MHz	Turn to signal	L6 (SW Ant. Coil). Adjust for maximum output.
		5			Repeat steps 4 & 5 several times.

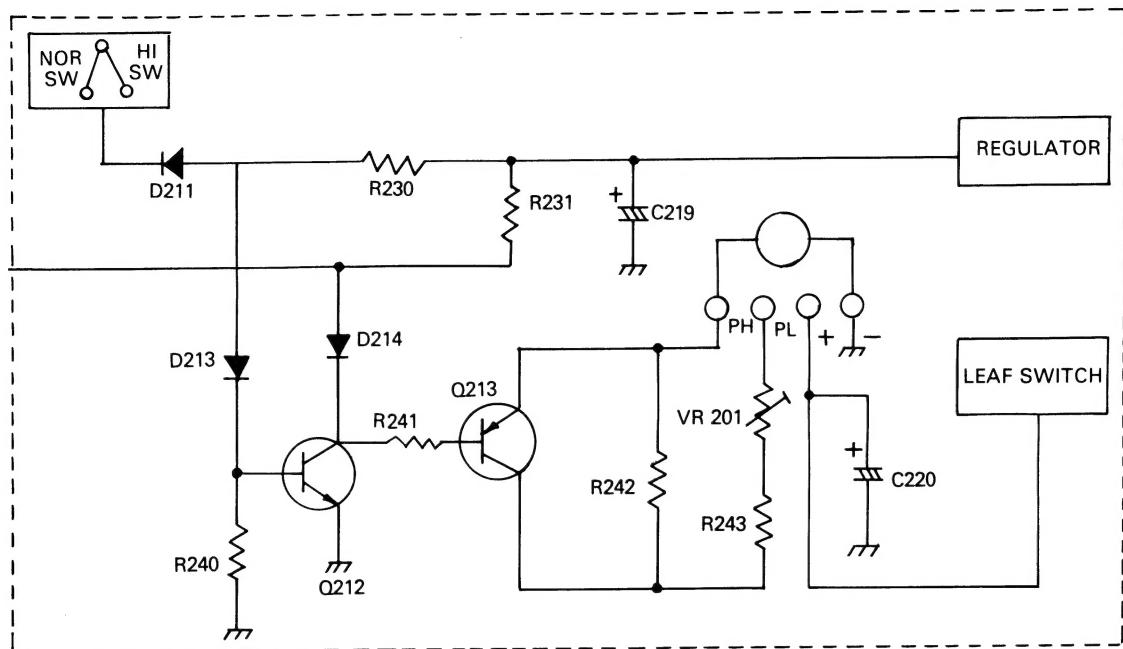
• FM SECTION

Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
IF	Connect input of IF Genescope to No. 8 of ICO2, output to the body of ICI through the dummy. (Figure 6)	1	10.7 MHz	Tuning Gang fully closed	T1, T2 (FM IFT). Adjust for maximum symmetrical response (10.7 MHz at the center point)
		2			Repeat step 1
Band	FM Signal Generator to antenna terminals through 75 ohm antenna matching network. Output Meter (VTVM) across 4 ohm load. (Figure 7)	3	87.35 MHz (400Hz Mod.)	Tuning Gang fully closed	L2 (FM OSC, Coil). Adjust for maximum output
		4	108.25 MHz (400 Hz Mod.)	Tuning Gang fully open	TCI-2 (FM OSC. Trimmer) Adjust for maximum output
		5			Repeat steps 3 & 4 several times.
Tracking	FM Signal Generator to antenna terminals through 75 ohm antenna matching network. Output Meter (VTVM) across 4 ohm load. (Figure 7)	6	90 MHz (400 Hz Mod.)	Tune to signal	L1 (FM Ant. Coil). Adjust for maximum output
		7	106 MHz (400 Hz Mod.)	Tune to signal	TCI-1 (FM Ant Trimmer). Adjust for maximum output.
		8			Repeat steps 6 & 7 to obtain suitable sensitivity at 90 MHz and 106 MHz.

• FM MPX ADJUSTMENT

Circuit Alignment	Equipment Connection	Step	Generator Frequency	Dial Setting	Adjustment
$38 \text{ kHz} \pm 0.1 \text{ kHz}$ (ROI)	FM Stereo Generator composite out connected to Ext. Mod of FM Signal Generator. FM Signal Generator to antenna terminals matching 75 ohm antenna matching network. Frequency Counter across TP (Pin No. 6 of ICO3) (Figure 8)	1			First make sure FM section properly aligned.
		2	98 MHz (1 mV output)	98 MHz	Adjust VR 704 for Frequency Counter indicates $38 \text{ kHz} \pm 0.1 \text{ kHz}$ .

## MOTOR SPEED ADJUSTMENT

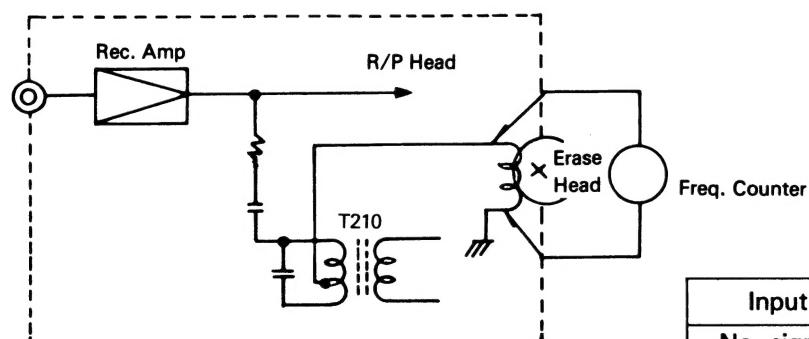


## NORMAL-SPEED ADJUSTMENT

Dubbing switch: Normal-speed

Input	Adjust for	Adjustment	Output
GTT-111	3000Hz ± 30Hz	VR201	Speaker out

## • BIAS FREQUENCY ADJUSTMENT



Input	Adjust for	Adjustment
No. signal	60 kHz	T210

NOTE. RIF S/W: "2" position.

## TEST EQUIPMENT CONNECTIONS

Figure 3 MW IF

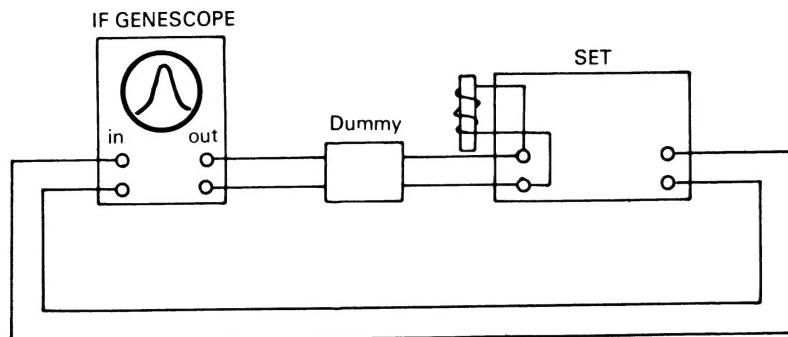


Figure 4. MW Band/Tracking

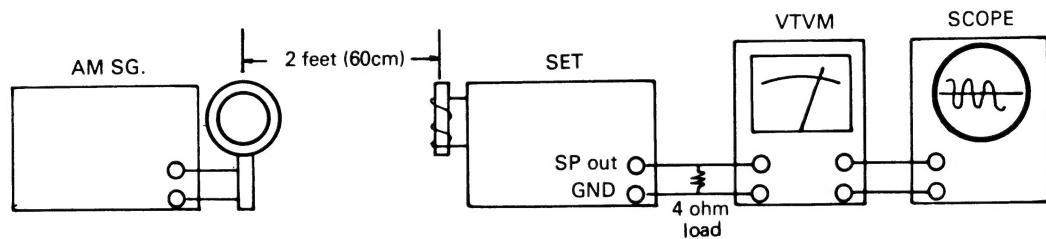


Figure 5. SW Band/Tracking

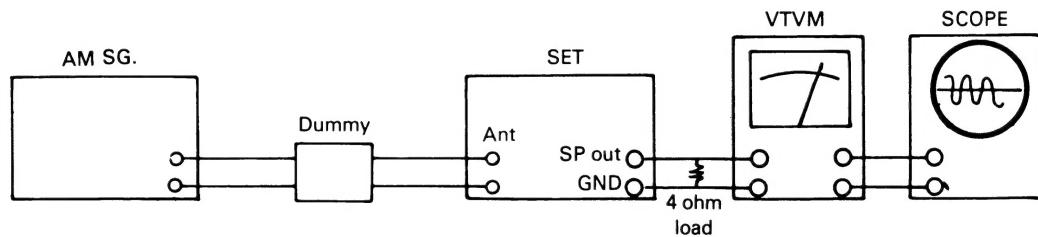
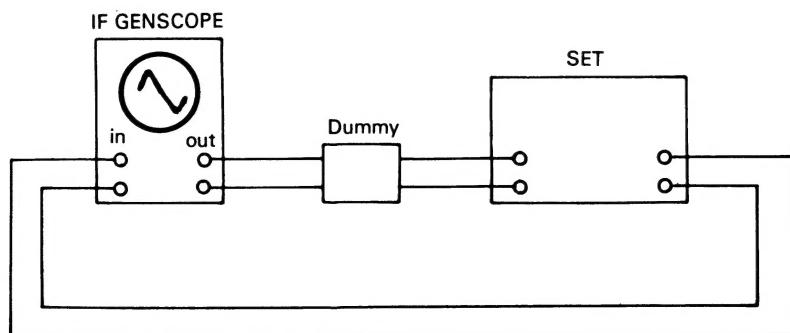
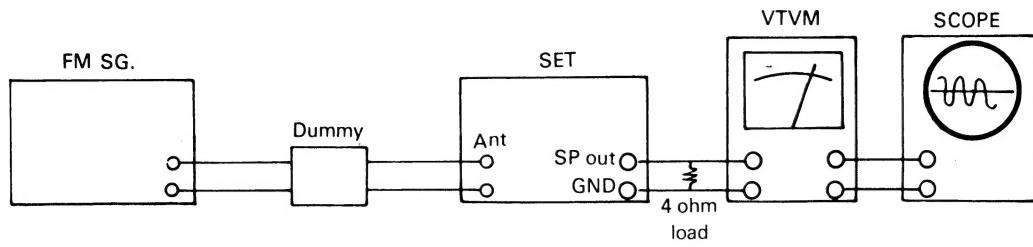


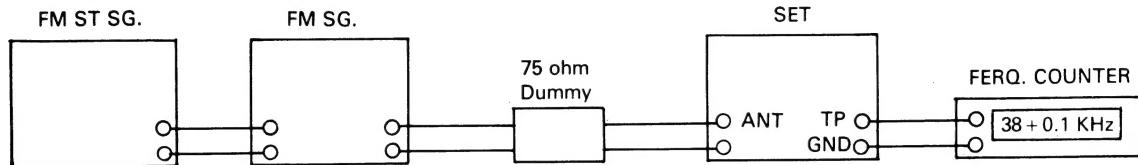
Figure 6. FM IF



**Figure 7. FM Band/Tracking**



**Figure 8. 38 + 0.1 KHz Pilot**



## STANDARD MAINTENANCE

### Tape Head and Capstan Cleaning

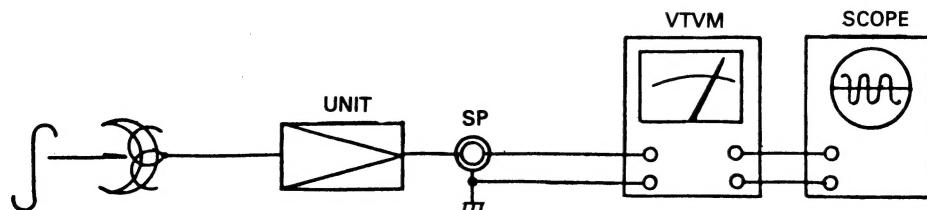
Whenever a unit is brought in for service or repair, clean the tape heads, capstan drive shaft and other tape handling surfaces to ensure proper tape handling and optimum frequency response. Use a cotton swab dipped in head cleaner or denatured alcohol to clean all tape handling surfaces. Wipe dry.

### Tape Head Demagnetization

Do not use magnetized tools near the tape heads, since they can magnetize the head. After long period of the heads will retain a small amount of residual magnetism. A magnetized head will result in loss of high frequency response and increased noise, use a standard tape head demagnetizer and follow the instructions supplied with it to demagnetize the heads.

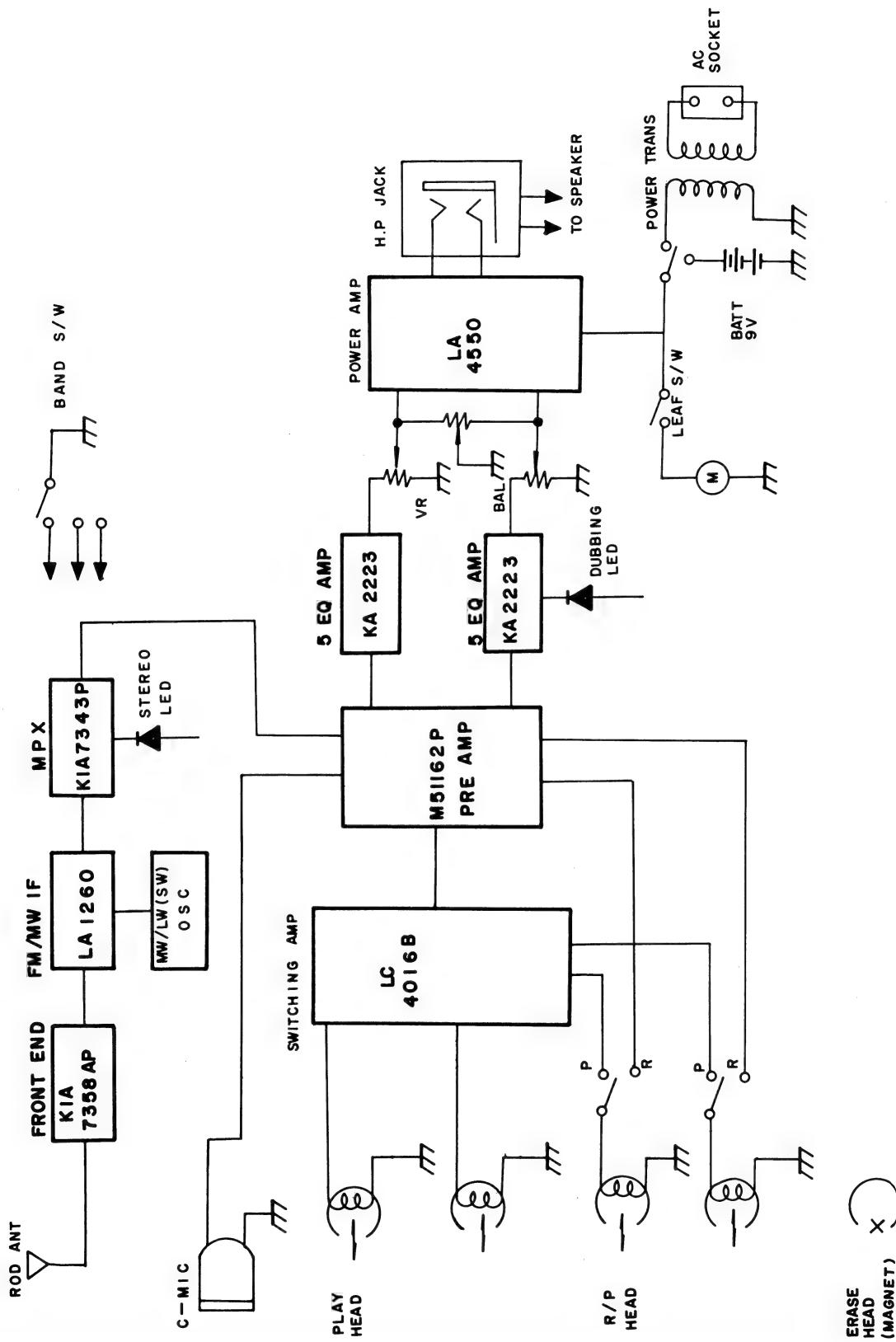
### Azimuth Adjustment

1. Azimuth adjustment is normally required when the head is replaced, or for cases of cross-talk and poor high frequency response. A test tape is required for such adjustment.
2. Connect a scope or VTVM to the right channel EXT. SP jack. Insert a test tape into the unit (use a test tape such as TEAC MTT-141). Adjust the azimuth adjustment screw for maximum output onto the right channel. Use glyptal or other non-hardening cement to lock the azimuth adjustment screw.



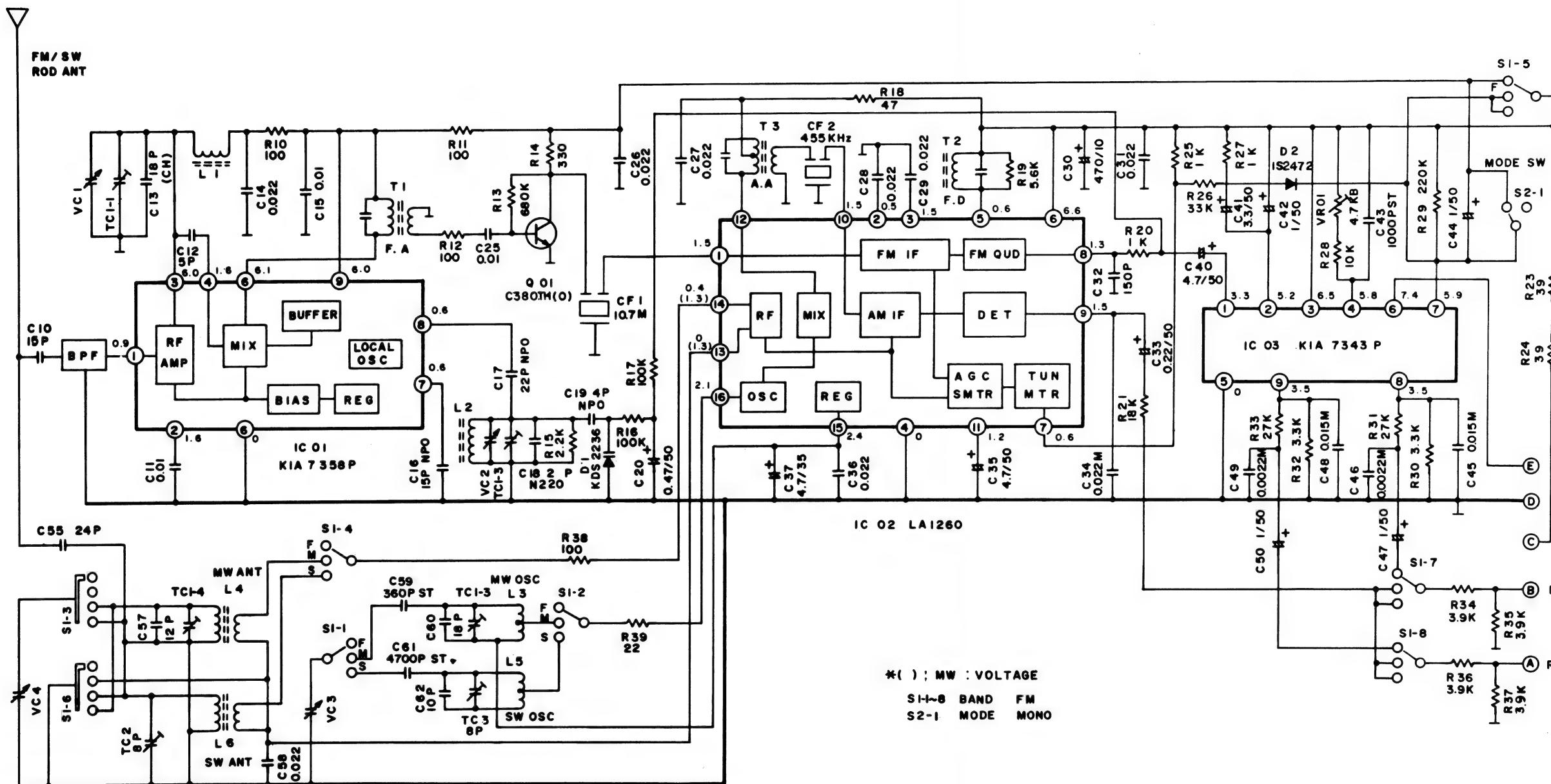
**(Left channel is the same as right)**

## BLOCK DIAGRAM



## SCHEMATIC DIAGRAM

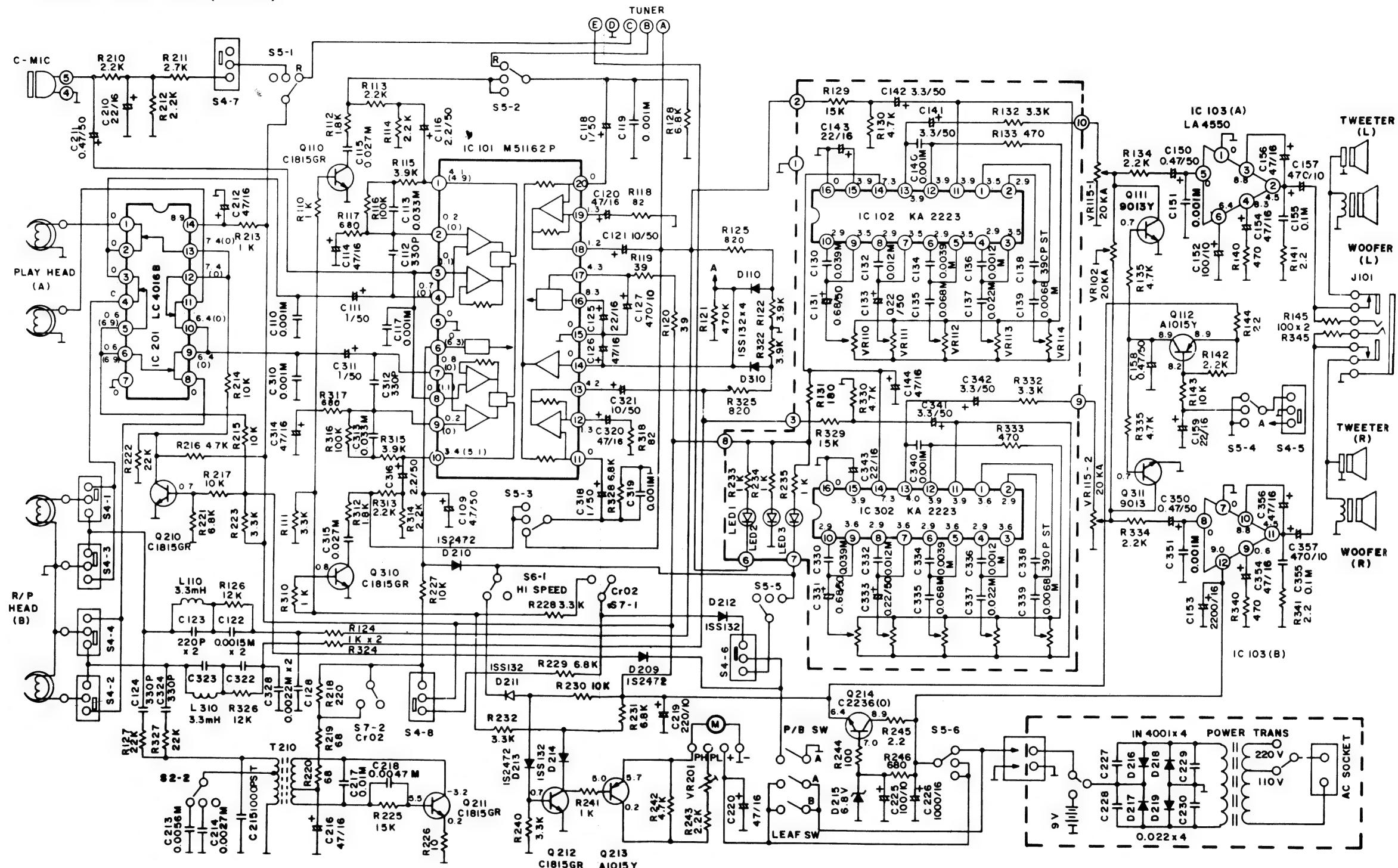
- MODEL: TWC-7083 (RF)



NOTE

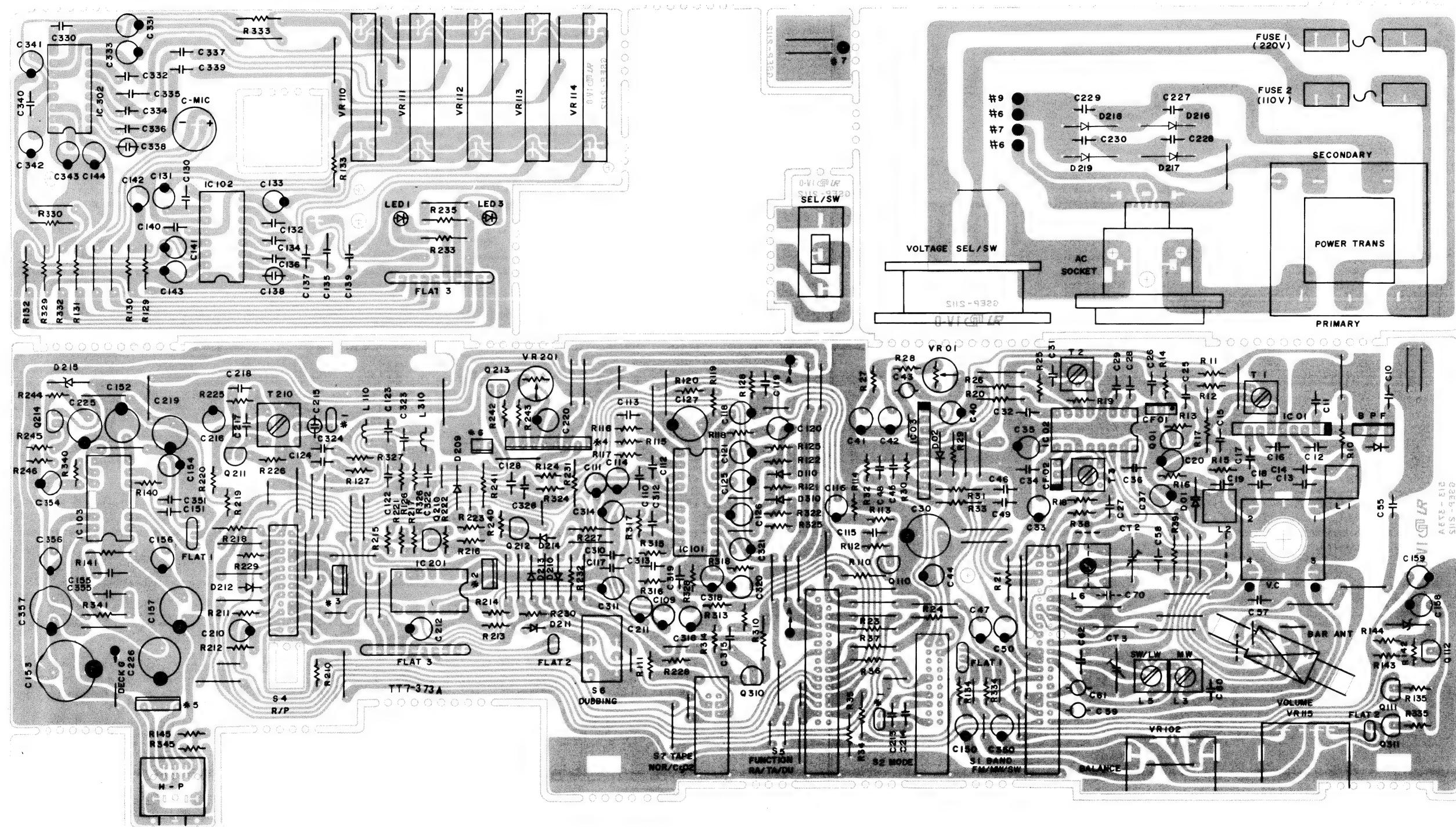
- 1 ALL RESISTOR VALUES ARE IN OHM (K=100)
- 2 ALL CAPACITOR VALUES ARE IN MICROMICROFARAD (P=10<sup>-12</sup>)
- 3 THIS SCHEMATIC DIAGRAM MAY BE CHANGED FOR IMPROVEMENT OF PERFORMANCE WITHOUT NOTICE.

• MODEL: TWC-7083 (AUDIO)

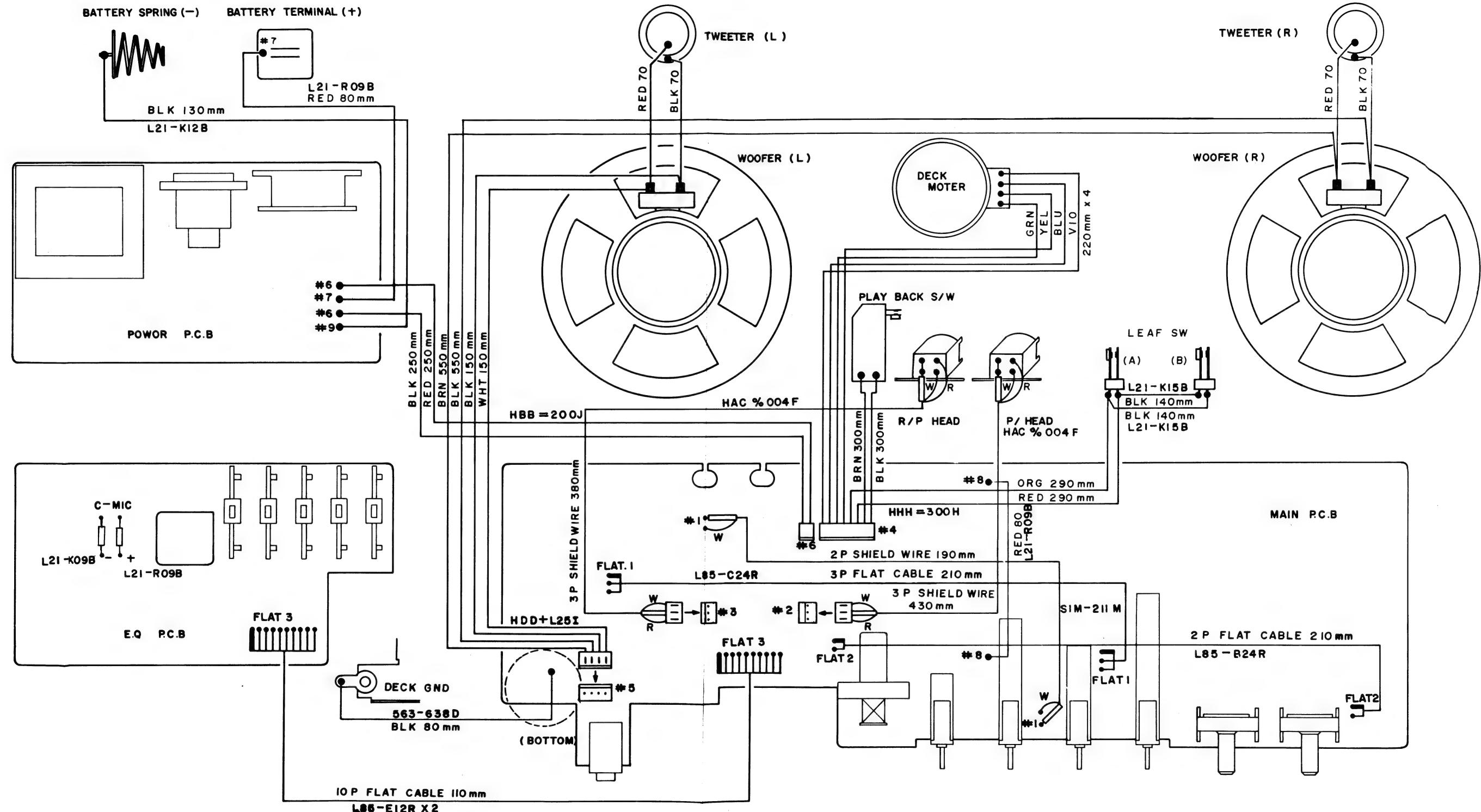


NOTE  
 1. ALL RESISTOR VALUES ARE IN OHM (K=100)  
 2. ALL CAPACITOR VALUES ARE IN MICROFARAD (P=MFD)  
 3. THIS SCHEMATIC DIAGRAM MAY BE CHANGED FOR  
 IMPROVEMENT OF PERFORMANCE WITHOUT NOTICE

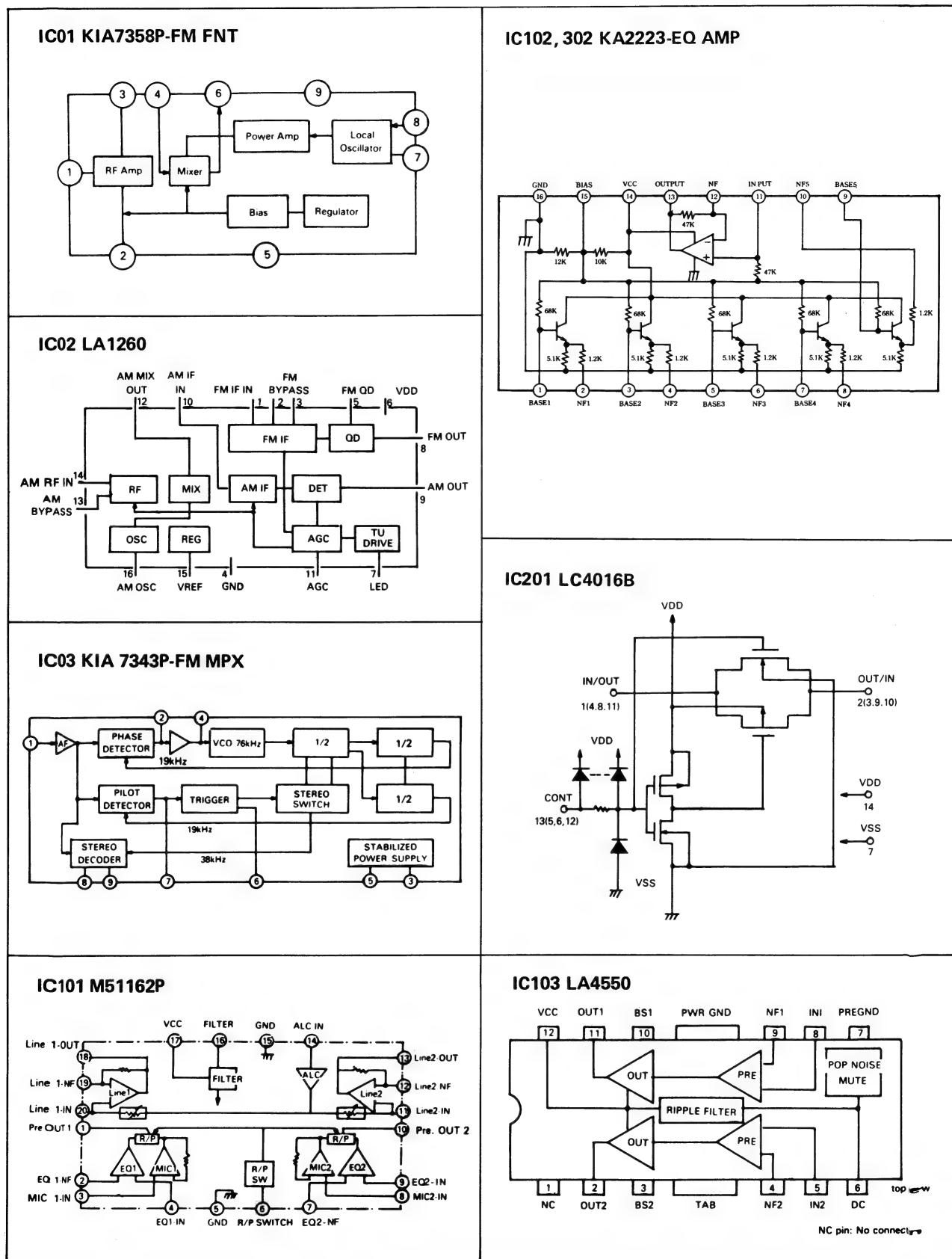
PCB LAYOUT



## WIRING DIAGRAM

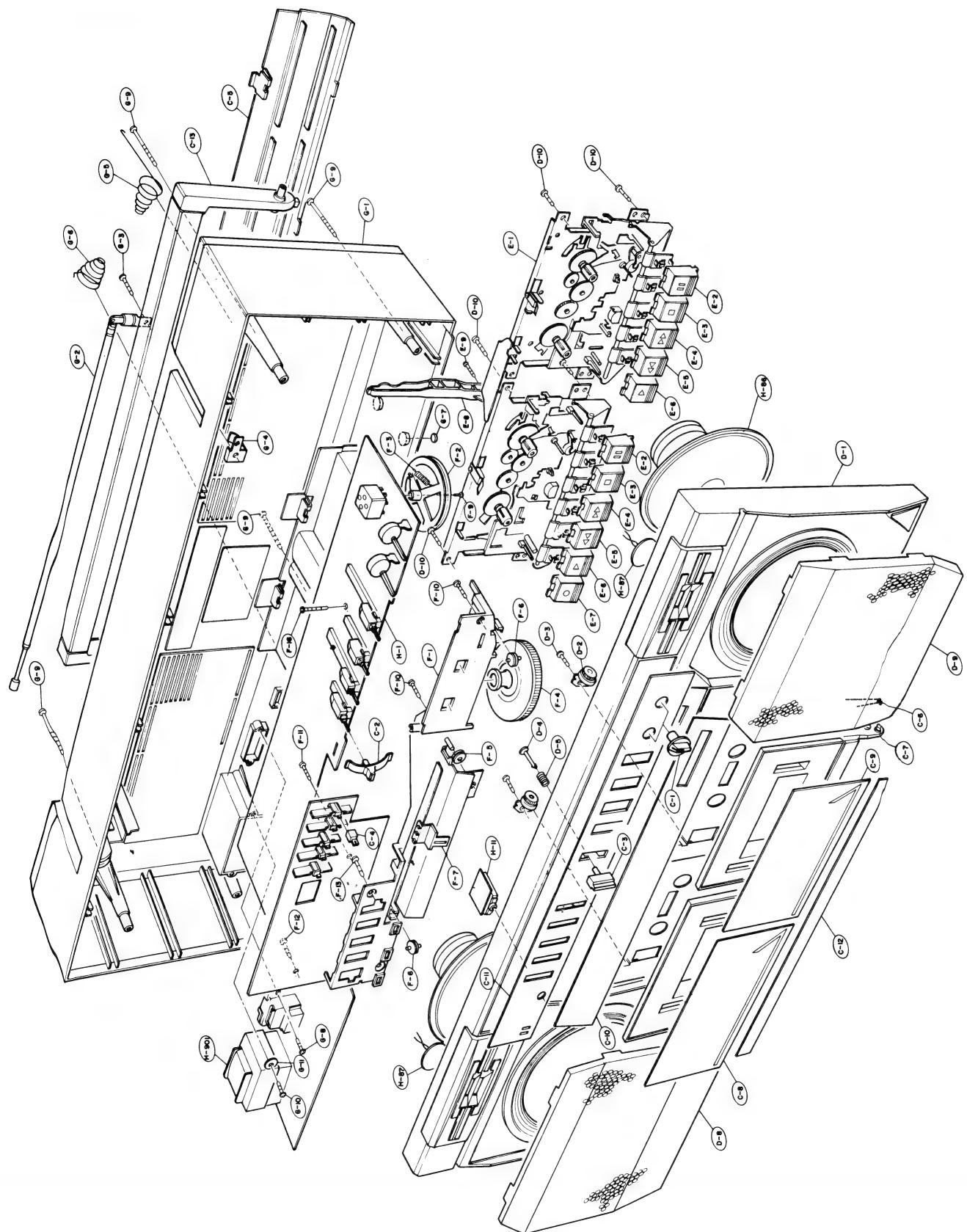


## IC INTERNAL DIAGRAM

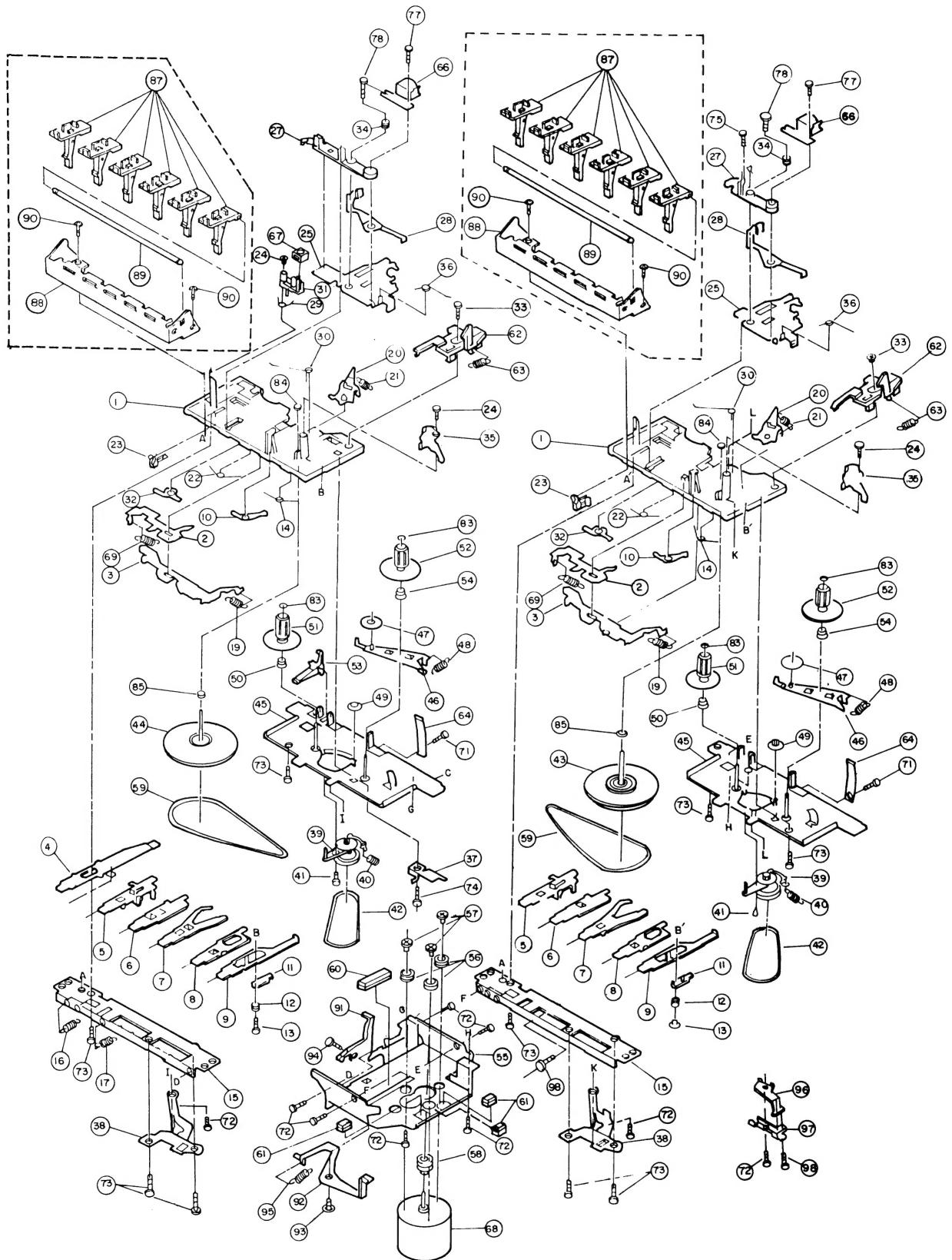


## EXPLODED VIEW

- CABINET



- DECK MECHANISM



**NOTE:** Excluded parts in the parts list are not available as replacement parts.

## REPLACEMENT PARTS LIST

**PRODUCT SAFETY NOTE:** Products marked with a  have special characteristics important to safety. Before replacing any of these components, read carefully the safety precaution of this service manual, don't degrade the safety of the receiver through improper servicing.

**NOTE: N.S.P. (Not Service Part)**

These parts are not available as repair parts because they are too costly or are not practical to replace or never expected to fail the life expectancy of the unit.

### • ELECTRICAL

LOCATION NO.	PART NO.	DESCRIPTION	REMARK	LOCATION NO.	PART NO.	DESCRIPTION	REMARK				
<b>INTEGRATED CIRCUITS</b>											
IC01	668-108D	KIA7358P (FM FNT)		D310	651T031A	Switch, ISS132					
IC02	668-192B	LA1260 (FM/AM IF)		D311	651T031A	Switch, ISS132					
IC03	668-159A	KIA7343P (MPX)		D312	651T031A	Switch, ISS132					
IC101	668-660A	M51162P (EQ+Line)		D314	651T031A	Switch, ISS132					
IC102	668-655D	KA2223 (EQ Amp)		LED1	653-625A	LED, KLR208E RD					
IC103	668-668A	LA4550 (Power Amp)		LED2	653-625B	LED, KLG208E GN					
IC201	668-662C	LC4016B		<b>COILS AND TRANSFORMERS</b>							
IC302	668-655D	KA2223 (EQ Amp)		L1	635-608C	Coil, FM RF					
<b>TRANSISTORS</b>											
Q1	665-820B	KTC380TM-O		L2	635-020B	Coil, FM OSC					
Q110	665-812C	KTC1815-GR		L3	634-037N	Coil, MW OSC					
Q111	665-703B	KTC9013A-H		L4	632-211E	Coil, MW ANT					
Q112	665-813B	KTA1015-Y		L5	634-020H	Coil, SW OSC					
Q210	665-812C	KTC1815-GR		L6	634-609A	Coil, SW ANT					
Q211	665-812C	KTC1815-GR		L110	637-005B	Coil, Peaking 33mH					
Q212	665-812C	KTC1815-GR		L310	637-005B	Coil, Peaking 33mH					
Q213	665-813B	KTA1015-Y		T1	644-018F	Trans, FM IF					
Q214	665-881C	KTC2236AY		T2	647-011F	Discriminator					
Q310	665-812C	KTC1815-GR		T3	644-039M	Trans, MW IF					
Q311	664-703B	KTC9013A-H		T210	634-036C	Coil, Tape OSC					
<b>DIODES</b>											
D 1	654-418A	AFC, IS2236		S1	556-620F	SLY383-S, H=12.5					
D 2	652T605B	Switch, IS2472		S2	556-620A	SLY343-S, H=12.5					
D 110	651T031A	Switch, ISS132		S4	552-606G	CL208J-S					
Q 209	652T605B	Switch, IS2472		S5	556-620B	SLY363-S, H=12.5					
Q 210	652T605B	Switch, IS2472		S6	554-631A	SUF12-S, H=12.5					
D 213	665-813B	Switch, IS2472		S7	556-620C	SLY322V-S, H=12.5					
D 215	654-723C	Zener, DZ 6.8 B, M		J101	571-103A	D=3.5 HSJ1064					
D 216	652-005A	Rect, IN4001		<b>VOLUMES</b>							
D 217	652-005A	Rect IN4001		VR102	611-648P	VR, K161A00-20KW					
D 218	652-005A	Rect IN4001		VR110	612-619E	VR, S152GGA-100KB					
D 219	652-005A	Rect IN4001		VR111	612-619E	VR, S152GGA-100KB					
				VR112	612-619E	VR, S152GGA-100KB					

LOCATION NO.	PART NO.	DESCRIPTION	REMARK	LOCATION NO.	PART NO.	DESCRIPTION	REMARK
VR113	612-619E	VR, S152GGA-100KB		CF1	616-008A	Filter, SFE10.7MS2	
VR114	612-619E	VR, S152GGA-100KB		CF2	616-003E	Filter, SFU 405B	
VR115	611-647X	VR, K162JOO-20KA		△ BPF1	622-012B 616-011G 542-035B 641-724C 577-005C	Varicon Poly Filter, BP-BPMB8 Condenser Mic Trans, Power AC Socket	
<b>MISCELLANEOUS</b>							
TC2, 3	623N023B	Trimmer					

## • CABINET

LOCATION NO.	PART NO.	DESCRIPTION	REMARK	LOCATION NO.	PART NO.	DESCRIPTION	REMARK
A-12 !	681-035C	Power Cord		E-15	MBC0726L	Screw MBC+1.7x5	
C-1	273-029F	KNOB Control		E-16	513-100A	PWB LEAF Switch	
C-2	273-017B	KNOB Lever S/W		F	311-083A	Chassis Assy'	
C-3	273-783A	KNOB Push		F-1	313-083A	Chassis	
C-4	273-065B	KNOB EQ V/R		F-2	431-052A	Pulley-Dial	
C-5	221-083A	Cover BAT		F-3	442-004E	Spring	
C-6	442-750A	Spring-Door		F-4	271-028D	KNOB Tuning	
C-7	226-783A	Door CST		F-5	434-038B	Roller	
C-8	236-783A	Window Door (L)		F-6	434-018A	Roller	
C-9	236-783B	Window Door (R)		F-7	361-083A	Pointer	
C-10	236-784A	Window Scale		F-8	886-0002	Cord Dial 0.47 (0.3LT)	
C-11	236-785A	Window Function		F-9	MPC1530J	Screw, MPC+2.6x6	
C-12	236-786A	Window Decoration		F-10	353-025G	Screw, Special 3x10	
C-13	261-783A	Handle Assembley		F-11	353-025S	Screw, Special 3x21	
D-1	217-082A	Case Front Assy'		F-12	353-025G	Screw, Special 3x10	
D-2	444-111A	Damper Assy'		F-13	353-025F	Screw, Special 3x8	
D-2-1	441-112A	Damper Gear		F-14	341-013A	Bushing MIC	
D-2-2	324-112A	Holder Gear		F-15	324-995H	Holder LED	
D-3	353-025G	Screw, Special 3x10		F-16	353-025F	Screw, Special 3x8	
D-4	324-426A	Holder, Push KNOB		G	215-084A	Case Assy' Rear	
D-5	442-634G	Spring KNOB		G-1	217-084A	Case Rear	
D-10	353-025G	Screw, Special 3x10		G-2	532-205B	Rod Antenna	
E	412-017A	Deck Ass'y		G-3	MAC1839L	Screw, MAC+3x10	
E-1	419-011M	Deck Mech'		G-4	563-083A	Terminal ANT	
	TN21SW-1199			G-5	442-714B	Spring, Battery (A)	
E-2	275-055G	Button-Deck, Pause		G-6	442N282I	Spring, Battery (B)	
E-3	275-055H	Button-Deck, Stop		G-7	447-059A	Cushion Spring	
E-4	275-055I	Button-Deck, F.F		G-8	353-025G	Screw, Special 3x10	
E-5	275-055J	Button-Deck, REW		G-9	353-041B	Screw, Special	
E-6	275-055K	Button-Deck, Play		G-10	353-025G	Screw, Special 3x10	
E-7	275-055L	Button-Deck, REC		G-11	354-601F	Washer, Metal	
E-8	333-083A	Lever Recording		H	511-373A	PCB Ass'y	
E-9	MPC0930J	Screw					

● DECK MECHANISM

LOCATION NO.	PART NO.	DESCRIPTION	REMARK	LOCATION NO.	PART NO.	DESCRIPTION	REMARK
20	99T-1094	Auto Lever		67	99T-1098	E. Head	
21	99T-0919	Auto Lever Spring		68	99T-1102	Motor	
23	99T-1103	LEAF Switch		71	99T-0960	C. Tapping Screw	
34	99T-0928	Azimuth Spring				M2x3	
35	99T-0929	Pinch Roller Arm Ass'y		72	99T-0961	C. Tapping Screw	
42	99T-0934	RF Belt		73	99T-1045	P Tapping Bind	
53	99T-1119	Record Safety Lever				Screw M2x5	
59	99T-0980	Main Belt		74	99T-1123	P Tapping Screw	
60	99T-0979	Anti Vibraion Felt Mat		75	99T-1057	M2x6	
61	99T-1131	Anti Vibration Felt Mat		93	99T-0972	Screw M2x6	
62	99T-1026	Eject Slide Lever		94	99T-0973	P.K. Coller Screw (A)	
64	99T-0954	Pack Spring		95	99T-0974	P.K. Coller Screw (B)	
65	99T-1132	P. Head		97	99T-1134	P. Kick Lever Spring	
66	99T-1143	R.P. Head		98	99T-1135	Leaf Switch	
						MSW-1412TNBK	
						Screw (2.0x4)	